

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/GB2004/000119

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: EP-A-0 981 263 (CERAMASPEED LTD) 23 February 2000 (2000-02-23)
D2: EP-A-0 948 238 (CERAMASPEED LTD) 6 October 1999 (1999-10-06)

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

A radiant electric heater comprising a base(2) of thermal and electrical insulation material having a surface supporting at least one electric heating element(3) comprising at least one elongate electrically conductive ribbon(4), the at least one electrically conductive ribbon(4) being supported on edge; a rod-like temperature-responsive device(7,8) extending lengthwise partly across the heater from an edge thereof and over the at least one electric heating element(3); the surface of the base(2) being provided with an elongate recess with sloping sides extending beneath and along the length of the rod-like temperature-responsive device(7,8)(abstract; figure 2).

The subject-matter of claim 1 differs from this known radiant electric heater in that the at least one electrically conductive ribbon is supported in and traverses the elongate recess such that an upper edge of the at least one electrically conductive ribbon substantially follows a contour of the surface of the recess.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as how to provide an arrangement of temperature-responsive device and electrically-conductive ribbon which maintains the majority of the upper surface of the ribbon at a constant distance from a cooking plate (needed for uniform heating) but which provides the ribbon safely distances from the temperature-responsive device.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) because such a disposition of the ribbon and the temperature-responsive device disclosed in it is neither

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known, nor rendered obvious by D1(or any other document part of the prior art). Document D2 discloses an arrangement where the base of a heater is profiled in the form of a section of a sphere. Therefore, the combinations of the teachings of D1 and D2 would also not result in a heater according to claim 1. Additionally, the above-mentioned technical problem is also not addressed by D1.

Claims 2 to 18 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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CLAIMS

1. A radiant electric heater (2) comprising:

5 a base (8) of thermal and electrical insulation material having a surface supporting at least one electric heating element comprising at least one elongate electrically conductive ribbon (10), the at least one electrically conductive ribbon (10) being supported on edge;

10

a rod-like temperature-responsive device (16) extending lengthwise partly across the heater (2) from an edge thereof and over the at least one electric heating element (10);

15

the surface of the base (8) being provided with an elongate recess (22) with sloping sides (24, 26) extending beneath and along the length of the rod-like temperature-responsive device (16),

20

characterised by the at least one electrically conductive ribbon (10) being supported in and traversing the elongate recess (22) such that an upper edge (28) of the at least one electrically conductive ribbon (10)

25 substantially follows a contour of the surface of the recess and whereby the upper edge (28) of the at least one electrically conductive ribbon (10) at a region (30) underlying the rod-like temperature-responsive device (16) is provided at a predetermined distance from the

30 rod-like temperature-responsive device (16) and is at a

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lower level relative to the upper edge (28) of the at least one electrically conductive ribbon (10) at regions (32, 34) at either side of the elongate recess (22), the at least one electrically conductive ribbon (10) in the 5 regions (32, 34) at either side of the elongate recess (22) being provided on a substantially planar surface of the base.

2. A heater as claimed in claim 1, characterised in
10 that the rod-like temperature-responsive device (16)
comprises metal.

3. A heater as claimed in claim 1 or 2, characterised in that the rod-like temperature-responsive device (16)
15 comprises a metal tube.

4. A heater as claimed in any preceding claim,
characterised in that the rod-like temperature-responsive device (16) has a first end supported at an edge region
20 of the heater (2) and a second end (18) substantially unsupported at an inner region of the heater (2).

5. A heater as claimed in any preceding claim,
characterised in that the elongate recess (22) has a
25 width which increases with increasing distance from the edge of the heater (2).

6. A heater as claimed in any preceding claim,
characterised in that the elongate recess (22) has a
30 depth which increases with increasing distance from the edge of the heater (2).

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responsive device and the underlying heating element or elements.

It is an object of the present invention to overcome or
5 minimise this problem.

According to the present invention there is provided a radiant electric heater comprising:

10 a base of thermal and electrical insulation material having a surface supporting at least one electric heating element comprising at least one elongate electrically conductive ribbon, the at least one electrically conductive ribbon being supported on edge;

15 a rod-like temperature-responsive device extending lengthwise partly across the heater from an edge thereof and over the at least one electric heating element;

20 the surface of the base being provided with an elongate recess with sloping sides extending beneath and along the length of the rod-like temperature-responsive device,

25 wherein the at least one electrically conductive ribbon is supported in and traverses the elongate recess such that an upper edge of the at least one electrically conductive ribbon substantially follows a contour of the surface of the recess and whereby the upper edge of the at least one electrically conductive ribbon at a region
30 underlying the rod-like temperature-responsive device is provided at a predetermined distance from the rod-like

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temperature-responsive device and is at a lower level relative to the upper edge of the at least one electrically conductive ribbon at regions at either side of the elongate recess, the at least one electrically 5 conductive ribbon in the regions at either side of the elongate recess being provided on a substantially planar surface of the base.

The rod-like temperature-responsive device may comprise 10 metal and may comprise a metal tube.

The rod-like temperature-responsive device may have a first end supported at an edge region of the heater and a second end substantially unsupported at an inner region 15 of the heater.

The elongate recess may have a depth which increases with increasing distance from the edge of the heater.

20 The elongate recess may also have a width which increases with increasing distance from the edge of the heater and may be such that a substantially constant angle of the sloping sides of the elongate recess is maintained as the depth of the elongate recess increases with increasing 25 distance from the edge of the heater.

The elongate recess may be of substantially shell or scallop form.

30 The at least one electrically conductive ribbon may be of corrugated form and may be provided with a plurality of spaced-apart legs, integral with the at least one

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